

G, G.—Canals of communication between the small cysts.

H, H, H, H, H.—Aponeurotic bands lining the large cysts.

Fig. 3.

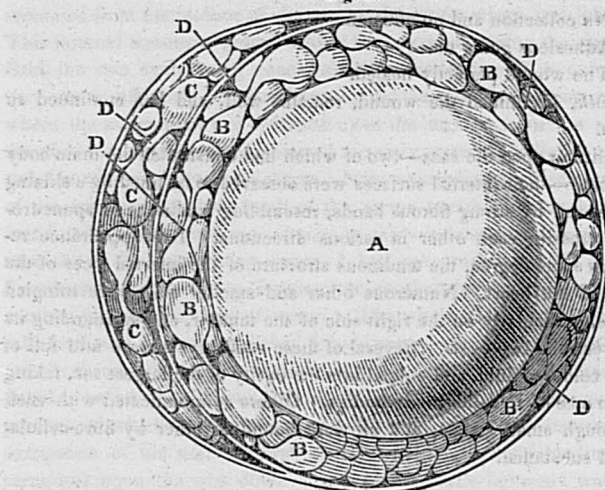


Fig. 3, represents an anterior view of the tumour with the external coat removed within a short distance from its base.

A.—The internal cyst entire, forming the tumour which projected into the cavity of the external cyst, and constituted the body of the tumour at the time the external cyst collapsed.

B, B, B, B, B.—Small cysts or vesicles between the two cysts, surrounding the base of the internal one.

C, C, C.—Small cysts or vesicles outside of the external cyst.

D, D, D, D, D.—Canals of communication between the small cysts.

LANCASTER, Penna. Sept. 25th, 1843.

ART. VII.—*Notices of the History and Properties of Sulphate of Potash.*

By T. ROMEYN BECK, M. D.

SULPHATE of potash (vitriolated tartar) was known to the chemists of the middle ages, and according to Professor Christison (*Dispensatory*, p. 743), the process for making it was first discovered by Crollius, about the middle of the seventeenth century. "It was known," says Dr. A. T. Thomson, "at a very early period, under a great variety of names, as for instance,

specificum purgans, *nitrum fixum*, *arcanum duplicatum*, *panacea holsatica*, *sal polychrest*, *sal de duobus*, *tartarum vitriolatum*. The present name was imposed by the French chemists in 1787.* That this great variety of names was not used without some reason, although possibly on imperfect grounds, will be seen by the following extract from Bergman (Physical and Chemical Essays. Edinburgh, 1791. Vol. 3, p. 150). "Most of the neutral salts were known to them, (the chemists of the middle ages,) but they apprehended that the *alkali veg. vitriolatum*, which they distinguished by various names, retained always some quality peculiar to the manner of its preparation. The direct union of alkali of tartar and vitriolic acid is called by Crollius *tartarus vitriolatus*, while the same salt obtained by precipitation with the alkali of tartar, from vitriolated iron, he denominates *specificum purgans*; that procured by the detonation of sulphur and nitre, is the *nitrum fixum* of Schroeder, and what remains in the retort after the distillation of aquafortis, is the common *panacea holsatica*, the *arcanum duplicatum* of Schroeder, and the *nitrum vitriolatum* of Rolinckius."

So highly was this substance esteemed, that, according to Shaw, in his Life of Boyle, the Duke of Holstein, some time before 1663, purchased the secret of preparing it for five hundred dollars, as a remedy in fever, stone, and scurvy. Hence, probably, one of the appellations that I have mentioned, *panacea holsatica*.*

It is not necessary at this time, to mention the characters of the salt. All pharmacutists agree that it is seldom adulterated,† and hence the uniformity in its appearance is readily understood and remembered. Nor is it necessary to trace its history as a medicinal substance from the period of its discovery. I prefer quoting the opinions of the present day, but shall premise with the remarks of Cullen:

"With regard to particular neutrals, I have a few observations only to make. I have said just now, that the vitriolated tartar may be employed as a refrigerant, and as it is thereby diaphoretic, it is employed in the composition of Dover's powder. (*Materia Medica*, vol. 2, p. 289.)

On referring to his repeated remarks on Dover's powder, it will be seen that he attributes all its virtues to the opium and ipecacuanha contained in it.

Dr. Chapman, (*Therapeutics*, vol. 1, p. 198), says: "Of vitriolated tartar, or sulphate of potash, I have little to say. It is very seldom used, and seems to be less esteemed as a laxative, than any of the neutral salts.

* The term *sal polychrest* is also applied to the tartrate of potash and soda. But the sulphate of potash is, according to Christison, the *sal polychrestus Glaseri*. That name, however, would seem to belong to the *sulphas potassæ cum sulphure* of the Edinburgh Dispensatory. See Wood & Bache, 5th edition, p. 1094, and Mackay, in *Pharmaceutical Journal and Transactions*, vol. 1, p. 319. Glaser was demonstrator of chemistry at the Jardin du Roi, in 1666. (Thomson's *History of Chemistry*, vol. 1, p. 235.)

† I shall presently mention an exception to this.

When resorted to at all, it is in the dose of a drachm or two, united to jalap, or rhubarb, or some other vegetable purgative. But even in this way, we see little of it in practice." In another place he acknowledges its value in the Dover's powder, but evidently for the reason that will be mentioned in further quotations. Dr. Eberle (*Therapeutics*, 2d edit. vol. 1, p. 144) remarks, that "sulphate of potash acts as a gentle aperient, when given in doses of about twenty or thirty grains. In the dose of from five to six drachms, it acts as a mild cathartic, though on account of its difficulty of solution it acts much slower than Glauber or Epsom salts. It is, however, very rarely employed with a view to its purgative effects. It forms a component part of the *pulvis ipecac. compositus*."

Dr. A. T. Thomson (*Elements of Materia Medica and Therapeutics*, vol. 2, p. 324,) has the following observations on it:—"The sulphate of potash is a useful purgative, but from its little solubility, it is seldom given alone, and scarcely ever in solution. It is supposed to extend its action beyond the bowels, and therefore is generally preferred as a purgative in cases of visceral obstructions; but I am inclined to believe that any effect of this nature is confined to the liver and pancreas, and that it acts upon them by stimulating the orifices of their excretory ducts in its passage through the duodenum. The dose for an adult is a drachm to three drachms; it is generally given in combination with jalap, rhubarb, aloes, or some resinous cathartic. In combination with aloes, as it acts on the duodenum, and the bitter of the aloes supplies the deficiency of bile, it is useful in jaundice, dyspeptic affections and habitual costiveness in persons of sedentary habits. *It is a good mechanical agent in assisting the pulverization of opium and some of the tough gum resins, which are apt to become soft under the action of the pestle.*"

Dr. Paris (*Pharmacologia*, 8th edition, p. 641) thus notices its medical uses:—"On account of its insolubility, it does not possess much activity as a purgative, but is said to be powerfully deobstruent; it should be exhibited in the form of powder, and in conjunction with rhubarb, or some purgative medicine. Dose, 10 grains to 30. From its hardness and insolubility, it is a most eligible substance for triturating and dividing powders."

Pereira (*Elements of Materia Medica*, London, 1839, p. 291,) gives the following account. "*Physiological effects*.—It acts as a very mild purgative, without any heat, pain, or other symptoms of irritation. *Its operation is, in fact, too mild for ordinary use.* *Uses*.—It is particularly serviceable as a laxative in disordered conditions of the alimentary canal, as diarrhœa and dyspepsia, in hepatic disorders, and hæmorrhoidal affections. It is best given in combination with rhubarb. Thus, from five to ten grains of rhubarb, with from fifteen grains to two drachms of this salt, will be found to act mildly and efficiently in many cases of dyspepsia and diarrhœa. It is an excellent aperient for children. The objections to its employment are its slight solubility, and that when given in large doses to children, it is apt

to produce vomiting. It is useful on account of its hardness for triturating and dividing powders, as in the *pulvis ipecacuanhæ compositus*.—Dose. It is given in doses of from fifteen grains to four or five drachms.”

In the recent “*Dispensatory*” of Professor Christison, p. 744, the following remarks are made by him:—“In action, sulphate of potash is a mild cathartic, which has been supposed to act more permanently than other saline remedies of the class. Though now little employed, it is really a convenient laxative, and undeserving of the neglect into which it has fallen. Soon after the discovery of the process for making it, the estimation in which it was held as a remedy for fever, scurvy, and calculus, was so great, that one of the dukes of Holstein purchased the publication of the secret. It may be usefully combined with other laxatives, and forms a considerable part of the convenient compound cathartic of the kind, the *pulvis salinus compositus* of the Edinburgh Pharmacopœia. Take pure muriate of soda and sulphate of magnesia, four ounces; sulphate of potash, three ounces; dry the salts separately with a gentle heat, and pulverize each, then triturate them well together, and preserve the mixture in well closed vessels.

“Being rather an insoluble salt, it should be given dissolved in warm water. On account of its great hardness and little tendency to absorb moisture from the air, it is an excellent substance for triturating with tough vegetable articles, to promote their thorough pulverization.

“The doses of its preparations are, sulphate of potash, one to four drachms, according to the effects desired; *pulvis salinus compositus*, two to six drachms.”

Dr. Dunglison (*General Therapeutics and Materia Medica*, vol. 1, p. 286,) observes, “sulphate of potash is a mild cathartic, operating without any unpleasant concomitants, but it is rarely employed. As a laxative, it might be given in the dose of twenty or thirty grains; as a purge, in doses of four or five drachms. It is sometimes, but not often, combined with rhubarb, in dyspeptic cases, and in gastro-intestinal affections of children, which are accompanied with constipation. It enters into the composition of the *pulvis ipecac. compositus* or Dover’s powder, not on account of its medical virtues, but because, by reason of its hardness, it facilitates the division of the opium.”

Lastly, Wood & Bache (*Dispensatory*, fifth edition, p. 572,) give the following summary of its medical virtues: “sulphate of potash is a mild purgative, operating without heat, pain, or other symptoms of irritation. In small doses, from a scruple to half a drachm, it operates as an aperient, and is useful in removing obstructions; in larger doses of four or five drachms, it acts slowly as a purge. Combined with rhubarb, in the proportion of about a drachm of the salt to ten grains of the root, Dr. Fordyce found it an excellent alterative cathartic in the visceral obstructions of children, characterized by a tumid abdomen, and defective digestion and nutrition, and we can bear testimony to its efficacy in these cases from our own experience. Dr. A.

T. Thomson states, that this salt either in combination with rhubarb or aloes has proved, in his hands, more useful than any other saline purgatives, in jaundice and dyspeptic affections. It enters into the composition of Dover's powder, in which it assists in pulverizing the other ingredients when triturated with them, in consequence of the hardness of its crystals."

I have adduced so many modern authorities for the purpose, if possible, of establishing its medical character, and I conceive that I am justified in asserting, 1. That it is conceded to be a mild purgative in doses ranging from four to six drachms, but that generally, it is preferred to give it in combination with other substances. 2. That by many practitioners, it is scarcely ever used except in compounding Dover's powder, and in such case, expressly for subdividing and mixing the other ingredients. 3. That no one has hinted, or at least appears to have been aware of its severe effects in large quantities, except, of course, the general inference that all medicinal articles may in increased doses prove poisonous. Certainly I cannot be mistaken, in saying that there is scarcely an article in the *materia medica*, which would not have been previously selected for inducing severe or poisonous effects. And yet, it would seem, that this substance is constantly employed in France by nurses as a domestic remedy, to diminish or stop the flow of milk in puerperal females, and is supposed, both in that country and in England, to have the power of inducing abortion. Cases are also given of late, in which large doses have proved poisonous. To one of these I have already alluded in the last number of this journal, page 497, but there is a misprint as to the quantity, which may be now corrected.

The reporter, Dr. Henry Bayard, states, that a female was delivered, in Paris, under the most favourable circumstances, and with no untoward succeeding symptoms. Seven days after the birth of the child, a physician prescribed as a purgative ten drachms (*forty grammes*) of sulphate of potash, to be divided into six doses, and one to be taken every quarter of an hour. The first induced a burning heat of the mouth, stomach, and abdomen, and this was followed, as the succeeding doses were taken, with cramps of the upper and lower extremities, nausea, vomiting, and purging. The nurse declared that much of the medicine passed undissolved, and was found at the bottom of the night stool. Death followed in about two and a half hours after taking the first prescription.

It was at first supposed that the apothecary had made a mistake in the medicine sent. The body was examined. The mucous membrane of the stomach was generally pale, with the exception of a few red points. But at the great curvature, it was emphysematous, and at the pylorus, also, there were several blebs (*bullæ*), raised between the mucous and muscular coats. The intestines partook of the same character; the *valvulæ conniventes* were of a red colour, contrasting strongly with the paleness of the adjoining parts. The uterus *had not yet returned* to its natural condition, and contained a

sanguineous fluid with the characteristic odour of the lochia. The bladder was completely empty.

MM. Chevallier and Bayard were directed to make a chemical examination. They tested the fluids found in the stomach and intestines; and a portion of the stomach, of the liver, and of the lungs, but were unable to find any indications of the presence of poison, by the ordinary mode, or by the apparatus of Marsh. Sulphate of potash could alone be detected. The liquid obtained from the stomach was evaporated down to an extract, and this extract was dissolved in water. On applying heat slowly, crystals of the sulphate were formed.

The inference was evidently unfavourable to the medicine that had been employed. Dr. Bayard in commenting on this case remarks, that this salt although formerly much used by physicians, is now but seldom given. Still many midwives and nurses prescribe it as a specific in milk diseases, or to cause the milk to diminish in child-bed females. A common prescription is from one to two drachms in a laxative drink, repeated after some days. "Très souvent, cependant, les medecins, dans leur pratique, l'ont employé jusqu'à soixante et soixante dix grammes," (two ounces and upwards.) Still there are cases on record of its severe effects. Merat and Delens saw an instance in 1821, of a female, who took an ounce by mistake, for an ounce of sulphate of magnesia, and in whom there followed heat, violent pain in the stomach and bowels, and vomiting. Greisellius (*Mem. Acad. Nat. Cur.* 1672,) relates an instance in which half a drachm induced violent purging. Raulin and Sobaux have each written on the injurious effects of using this salt with pregnant or puerperal females. The latter (*Journal de Medecine*, vol. 62,) has published four cases, in which the exhibition of two drachms of sulphate of potash to females in the second and third weeks after delivery, induced severe colic, a tympanitic abdomen, cramp, and every indication of approaching peritonitis.

Dr. Bayard, in summing up his opinion on the case, very properly expresses his unwillingness positively, to ascribe the fatal termination to the medicine employed, being well aware, that females after delivery are often severely affected by mild substances. Still he inclines to the opinion, that too large a dose has caused this first case in which sulphate of potash had an action véritablement toxique.—*Annales d'Hygiene*, vol. 27, p. 397.

The above publication of Dr. Bayard was read at a meeting of the Pharmaceutic Circle of the Upper Rhine, held at Colmar, in July, 1842. M. Moritz, a member, stated that about fifteen years previous, the following case had occurred to him at Strasburg: a dose of eight grammes (two drachms) was prescribed for a female, as an "*ante-laticux*." It induced violent vomiting and purging, and all the symptoms of poisoning, but by proper means the patient recovered. This led to an examination of the article, and it was found to contain a notable proportion of sulphate of zinc. To this last, then, the violent symptoms were ascribed. Out of eight speci-

mens, obtained from different quarters, two contained the sulphate of zinc, and the conclusion of M. Moritz is, that these extraordinary effects are owing to the presence in the sulphate of potash of a poisonous metal. (*Journal de Pharmaciè*, March, 1843, quoted in the *Encyclographie des Sciences Medicales*, for July, 1843.)

Messrs. Chevallier and Gobley were induced, from the above statement, to examine the commercial sulphate of potash, of Paris. They premise, however, by asserting that in the case of Dr. Bayard no sulphate of zinc could have been present. The experiments performed demonstrate this.

Specimens were obtained from twelve of the principal drug establishments. An ounce of each of these sulphates of potash was dissolved in distilled water, and the filtered liquor was tested with the double cyanuret of iron and potassium, sulphuretted hydrogen and ammonia. Neither of these tests affected the transparency of the liquors. In order to ascertain how small a quantity could be made manifest, they prepared a solution of sulphate of potash, containing one two thousandth of sulphate of zinc; the three reagents each produced a cloud, and proved the presence of the zinc. For smaller quantities, the double cyanuret proved to be the most minute test. It is hence inferred that the commercial sulphate of potash at Paris, is usually free from sulphate of zinc.—*Annales d'Hygiene*, vol. 29, p. 158.

I subjoin to these, the following case, occurring in England. The quantity taken, it will be observed, was larger than in any of the preceding.

On Thursday, the 28th of September, 1843, William Haynes, oil and colour man, was charged at one of the police offices in London, with having caused the death of his wife by administering poison to her, with the view of procuring abortion. Mr. Mark Pickering, a surgeon, stated that at a quarter to four o'clock that morning he was requested by a neighbour of the prisoner, instantly to call and see a female dying from poison. On going to the house, he was admitted by the prisoner, who conducted him into the bed-room, where his wife was lying, but quite dead, and she had apparently been so about half an hour. He asked the prisoner the cause of his wife's death, and what she had taken? when he told him, in an unconcerned manner, that he had given her the night before, on going to rest, two ounces of sulphate of potash, mixed with water in a glass. He inquired his object in giving it to her, and he said it was to make her miscarry. The prisoner then voluntarily acknowledged to having given his wife about a fortnight ago, in two or three doses, as much as a quarter of a pound of the same drug, and that he had continued administering small quantities of it to her up to Tuesday night, when he gave her two ounces at once, and at ten o'clock on the preceding night, two ounces more. He stated further, that the last dose excited sickness to a terrible degree, and that from the time his wife had taken it, she gradually sank under its effects till three o'clock, when she expired. The witness endeavoured to bleed her, but of course without effect; and as he did not consider himself justified in allowing so

serious a matter to rest where it was, he went to the door, and having called in Woods, a policeman, informed him of the nature of the prisoner's offence, and consigned him to that officer's custody. Woods, the officer, produced one of those disgusting and pernicious books, pretending to be founded on medical experience, giving instructions to newly married people, as to what measures they should take to avoid the increase and burthen of a family, and in which publication the very doses administered by the prisoner to his unfortunate wife, were specified. This book the officer found in a drawer in the prisoner's house.

The prisoner being called on for his defence, Mr. Heritage said, this was one of those unfortunate and foolish occurrences, which too frequently resulted from the extreme readiness which some people now-a-days exhibited to follow the pernicious advice and prescriptions contained in pseudo-medical works, and which generally resulted in the most shocking consequences. The unfortunate deceased, who was the mother of one child, which was now living, felt an extreme dread, along with the prisoner, of increasing her family, and to avert such a charge, she had voluntarily taken this drug for the purpose of producing a miscarriage, she being three or four months advanced in pregnancy at the time. He admitted the prisoner was aware that his wife had taken it, but he denied mixing it for her himself, he being in bed at the time she did so. Neither of the parties were aware it would be likely to cause the woman's death. Mr. Bingham (the magistrate) said it was quite manifest, whether or not the prisoner gave his wife those doses with the intention or expectation of producing death, that he did so, with the intention of procuring abortion, which was an offence of the gravest description, and under the circumstances, he should remand the prisoner for a week, to await the result of the coroner's inquest and post-mortem examination.—*London Atlas*, Sept. 30th, 1843.

If it be granted, as I apprehend it is generally, that sulphate of zinc in small quantities, is tonic, rather than emetic, the theory of M. Moritz can hardly be sustained. That zinc is not usually present has also been shown, nor is there any thing in the ordinary process of the manufacture of sulphate of potash, that should lead us to suppose its existence in that salt. Even rejecting the case of Moritz altogether, I submit, whether sufficient has not been stated, to show that severe effects are to be apprehended from large purgative doses of this *specificum purgans*.

ALBANY, Oct. 23d, 1843.